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MAY 10 2016

Ref: 8EPR-EP

Alan Matheson, Executive Director
Utah Department of Environmental Quality
195 North 1950 West, 4th Floor
P.O. Box 144810
Salt Lake City, Utah 84114-4810

Re: EPA's Action on Revisions to UAC R317-2 Standards of Quality of Waters of the State

Dear Mr. Matheson:

The U.S. Environmental Protection Agency has completed its review of the revision to Utah Administrative Code R317-2 (Standards of Quality for Waters of the State). The revisions were adopted by the Utah Water Quality Board (Board) on September 23, 2015, with an effective date of November 30, 2015, and submitted to the EPA for review with a letter dated January 19, 2016. The submittal package included the technical support document as well as: (1) copies of the notice of proposed amendments; (2) notice of final adoption of the amendments with the state's response to comments; (3) a link to the current version of R317-2; and (4) a letter certifying that the amendments were adopted in accordance with state law. Receipt of the submittal package on January 26, 2016, initiated the EPA's review pursuant to Section 303(c) of the Clean Water Act (CWA or the Act) and the implementing federal WQS regulation (40 CFR § 131).

Clean Water Act Review Requirements

The CWA Section 303(c)(2) requires states and authorized Indian tribes[1] to submit new or revised WQS to the EPA for review. The EPA is required to review and approve, or disapprove, the submitted standards. Pursuant to CWA Section 303(c)(3), if the EPA determines that any standard is not consistent with the applicable requirements of the Act, the agency shall, not later than the ninetieth day after the date of submission, notify the state or authorized tribe and specify the changes to meet the requirements. If such changes are not adopted by the state or authorized tribe within ninety days after the date of notification, the EPA is to propose and promulgate such standard pursuant to CWA Section 303(c)(4). The EPA's goal has been, and will continue to be, to work closely with states and authorized tribes throughout the standards revision process so that submitted revisions can be approved by the EPA. Pursuant to the EPA's Alaska Rule (40 CFR § 131.21(c)), new or revised state standards submitted to the EPA after May 30, 2000, are not effective for CWA purposes until approved by the EPA.

Today's Action
Today the EPA is approving the following revisions to water quality standards adopted by the Board on September 23, 2015:

- revisions to Table 2.14.1 Footnote 4 (site-specific total dissolved solids (TDS) criteria for Blue Creek and Blue Creek Reservoir, Box Elder County, Utah);

[1] CWA Section 518(e) specifically authorizes EPA to treat eligible Indian tribes in the same manner as states for purposes of CWA Section 303. See also 40 CFR Section 131.8.

- deletion of Table 2.14.2 Footnote 13 (Formula to convert dissolved sulfide to un-disassociated hydrogen sulfide is: H_2S = Dissolved Sulfide * $e^{((-1.92 + pH) + 12.05)}$); and
- revisions to Table 2.14.3b (typographical corrections to the hardness-based metals criteria equations).

The EPA is taking no action on revisions to the pollution indicators in Table 2.14.2 (i.e., relocation of the gross alpha aquatic life pollution indicator and the pollution indicator footnote typographical correction) since the EPA does not consider these to be new or revised water quality standards requiring a CWA § 303(c) action. The detailed rationale for the EPA's action is enclosed.

Endangered Species Act Requirements

The EPA's approval of Utah's WQS is considered a federal action which may be subject to the Section 7(a)(2) consultation requirements of the Endangered Species Act (ESA). Section 7(a)(2) of the ESA states that "each federal agency ... shall ...insure that any action authorized, funded or carried out by such agency is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined to be critical..." Because there is no occurrence of listed species or critical habitat for listed species in Blue Creek Reservoir, Blue Creek, or the downstream waterbodies, and the level of protection provided to aquatic life does not change with the state-wide typographical corrections, the EPA concludes that its approval action today will have no effect on listed species or designated critical habitat and is otherwise not subject to ESA consultation.

Indian Country

The WQS approvals in today's letter apply only to waterbodies in the state of Utah, and do not apply to waters that are within Indian country, as defined in 18 U.S.C. Section 1151. Today's letter is not intended as an action to approve or disapprove water quality standards applying to waters within Indian country. The EPA, or authorized Indian tribes, as appropriate, will retain responsibilities for water quality standards for waters within Indian country.

Conclusion

The EPA thanks the Department of Environmental Quality and the Board for their efforts to review and revise Utah's water quality standards. The recent revisions clarify Utah's existing regulations and improve the state's water quality program. The EPA looks forward to working with the state to make additional improvements to the State's water quality standards. If you have any questions, please contact Lareina Guenzel on my staff at (303) 312-6610 or guenzel.lareina@epa.gov.

Sincerely,

Martin Hestmark
Assistant Regional Administrator
Office of Ecosystems Protection
and Remediation

Enclosure

cc: Walt Baker, Director
Utah Division of Water Quality

Chris Bittner
Utah Division of Water Quality

Enclosure

Rationale for the EPA's Action on Utah's New/Revised Surface Water Quality Standards

Today's EPA action letter addresses the revisions to Utah's water quality standards adopted by the Water Quality Board (Board) on September 23, 2015, with an effective date of November 30, 2015. This enclosure provides a summary of the revisions and a rationale for the action taken by the EPA.

Approved Provisions

Site-specific Total Dissolved Solids Criteria

Utah's state-wide total dissolved solids (TDS) criterion of 1,200 mg/L applies to waterbodies with a Class 4 use designation, which are "protected for agricultural uses including irrigation of crops and stock watering" (R317-2-6). The Board adopted the following site-specific TDS criteria for Blue Creek and Blue Creek Reservoir in Table 2.14.1 (Numeric Criteria for Domestic, Recreation and Agricultural Uses) Footnote 4.

> Blue Creek and tributaries, Box Elder County, from Bear River Bay, Great Salt Lake to Blue Creek Reservoir:
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> March through October daily maximum 4,900 mg/l and an average of 3,800 mg/l; November through February daily maximum 6,300 mg/l and an average of 4,700 mg/l. Assessments will be based on TDS concentrations measured at the location of STORET 4960740.
>
> Blue Creek Reservoir and tributaries, Box Elder County, daily maximum 2,100 mg/l;

Results from site-specific water quality and flow studies, existing agricultural use evaluation, and data analyses are presented in the *Criteria Support Document: Site-Specific standard for Total Dissolved Solids, Blue Creek Reservoir and Blue Creek, Box Elder County,* Utah (UDEQ September 3, 2015 Draft). These analyses supported setting the criteria to values that will protect the exiting water quality conditions that have been observed between 1989 and 2010. Statistical analyses were conducted with Systat (v. 13) or the USEPA ProUCL (v.5.0) software. For Blue Creek, the seasonal average and maximum criteria are set to the long term seasonal average and the 95% upper confidence limit (UCL) of the 90th percentile (or 95% UTL with 90% coverage) (EPA/600/R-07/041), respectively. For Blue Creek Reservoir, the maximum criterion is set to the 95% UCL of the 90th percentile. The magnitude of the maximum criteria align with the allowed exceedance frequency in R317-2-7 (10% exceedance) and the criteria support document provides details on the Divisions' expectations for determining compliance with the average criterion.

The EPA reviewed the data and analysis provided by the state and determined that the site-specific criteria for Blue Creek and Blue Creek Reservoir are scientifically defensible, protective of UT's broadly defined agricultural use (Class 4), and consistent with 40 CFR § 131.11 requirements. Accordingly, the EPA approves the site-specific criteria.

Background

The Division first proposed adoption of site-specific criteria for Blue Creek and Blue Creek Reservoir in 2014. The EPA provided public comments on the Division's proposed approach in a letter dated 4/4/14. In these comments, the EPA generally supported the adoption of the site-specific criteria, but had several questions and concerns with the criteria derivation methodology and implementation. A revised proposal that addressed some, but not all of the EPA's concerns, was adopted by the Board and submitted to the EPA for review in a letter dated 8/18/2014. Subsequently, the EPA and the Division continued to discuss the remaining issues. The Division determined that additional revisions to the site-specific criteria were warranted, therefore the EPA did not act on the 2014 submission and the 2014 criteria were never in effect for CWA purposes. The site-specific criteria submitted to the EPA on January 19, 2016, and subject to today's action, replace the 2014 submission.

Considerations for the Development of Site-Specific Criteria

40 CFR § 131.11 requires adoption of "water quality criteria that protect the designated use" based on "sound scientific rationale." It further specifies that states should adopt numeric criteria based on CWA § 304(a) guidance, CWA § 304(a) guidance modified to reflect site-specific conditions, or other scientifically defensible methods, and narrative criteria where numerical criteria cannot be established or to supplement numerical criteria.

In the case of Blue Creek and Blue Creek Reservoir, the adopted site-specific criteria protect the existing TDS-limited agricultural and aquatic life uses that have been established in the presence of the high TDS. The existing agricultural uses of Blue Creek Reservoir include stock watering and crop irrigation. Crops that are supported by flood irrigation in the watershed include grass pasture, alfalfa, barley, wheat and less than 40 acres of corn. The existing agricultural uses of Blue Creek include stock watering, wildlife propagation and limited irrigation for salt tolerant crops such as wheat grass and salt grass. Although the actual agricultural activities taking place in the watershed do not reflect the full range of potential activities (i.e., range of crops grown elsewhere), the activities are within the broad scope of UT's agricultural use definition. Ambient TDS concentrations in these waterbodies exceed protective levels for crops that are considered more sensitive to salts, such as alfalfa, peaches and sweet corn,[2] and may result in reduced yields and/or decreased water infiltration rates. These ambient water quality conditions in Blue Creek reflect the local hydrology and the management of the dam, which are difficult to alter. Nevertheless, the ambient concentrations support the agricultural activities occurring in the area and the types of activities defined by the state's agricultural use. Similarly, these waterbodies would be expected to support salt tolerant aquatic life.

Magnitude, Duration and Frequency for Site-specific Criteria and Assessment Considerations

Numeric water quality criteria have three components: magnitude, duration and frequency. The magnitude provides the concentration of the parameter that can be maintained over time without adversely affecting the designated use. The duration component is the time period over which the

[2] For more examples see Grieve, Catherine M., Grattan, Stephen R., and Maas, Eugene V. 2012. Plant Salt Tolerance. In: Wallender, W.W. and Tanji, K.K. (eds.) ASCE Manual and Reports on Engineering Practice No. 71 Agricultural Salinity Assessment and Management (2nd Edition). ASCE, Reston, VA. Chapter 13 pp. 405-459.

exposure is averaged (i.e., averaging period). The frequency component describes the number of times the magnitude/duration condition may be exceeded and still protect the designated use and desired water quality condition.

The site-specific TDS criteria for Blue Creek and Blue Creek Reservoir are novel for UDEQ since they are the first site-specific criteria that explicitly state the duration with the criterion. Explicitly stating duration expectations in the standard facilitates the proper implementation of the criterion. A second novel aspect is that the criteria for Blue Creek include both an average and maximum concentration for summer and winter months due to the high seasonal variability in TDS concentration.[3] The development of seasonal criteria that include both an average and maximum is an improvement over previous approaches since it preserves the distribution of the existing water quality conditions, providing additional protection of high quality conditions with an average as well as placing a cap on the maximum concentrations that will be allowed.

With respect to the frequency of exceedance and assessment of site-specific criteria, R317-2-7 establishes the allowable exceedance frequency for the maximum criteria and states "up to 10 percent of the representative samples may exceed the minimum or maximum criteria for dissolved oxygen, pH, *E. coli*, total dissolved solids, and temperature, including situations where such criteria have been adopted on a site-specific basis." R317-2 and UDEQ's assessment methodology do not address the implementation of criteria that are set to an average; therefore, the Division's *Criteria Support Document* outlines an assessment approach that takes the data variability and statistical certainty into consideration when determining attainment of ambient-based standards. The EPA took the assessment recommendations into consideration when reviewing the average criteria for Blue Creek and recommends that the Division work with the EPA to further develop the proposed approach and incorporate the final methods into the next version of the state's assessment methodology.

Non-Substantive Changes to Existing WQS

UDEQ's submission included the following non-substantive changes:

- deletion of Table 2.14.2 Footnote 13 (Formula to convert dissolved sulfide to un-disassociated hydrogen sulfide is: H_2S = Dissolved Sulfide * $e^{((-1.92 + pH) + 12.05)}$); and
- typographical corrections to the equations for nickel, silver, and zinc in Table 2.14.3b (Equations to Convert Total Recoverable Metals Standard with Hardness Dependence to Dissolve Metals Standard by Application of a Conversion Factor).

The UDEQ deleted Footnote 13 because the formula could not be verified and produced erroneous results at low pH. The content of the deleted Footnote 13 did not change the protectiveness of hydrogen sulfide water quality criterion. While the revisions do not substantively change the meaning or intent of the existing water quality criteria, the EPA believes that it is reasonable to treat such non-substantive changes to WQS in this manner to ensure public transparency as to which provisions are effective for purposes of the CWA.[4] Accordingly, the non-substantive revisions to Table 2.14.3b are approved.

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[3] Existing site-specific criteria for TDS in R317-2-14 have been set to the 90th percentile of the dataset when existing conditions have been determined to be the highest attainable use. Utah has also adopted attainability-base site-specific criteria when feasible load reductions have been identified.

[4] See EPA's October 2012 *What is a New or Revised Water Quality Standard Under CWA 303(c)(3)?-- Frequently Asked Questions* available at http://www.epa.gov/wqs-tech/reference-library-water-quality-standards-policy-and-guidance-documents.

Revisions the EPA is Not Acting on Today

The EPA is not acting on the following revisions to Table 2.14.2:

- the relocation of the gross alpha pollution indicator; and [5]
- revising the pollution indicator footnote from Footnote 11 (petachlorophenol footnote) to the correct Footnote 10.

The relocation of the gross alpha pollution indicator and the revision to the pollution indicator footnote are considered formatting and typographical corrections, respectively. The pollution indicators in general do not establish a desired condition or a changed level of protection; therefore, the EPA determined these provisions are not WQS requiring Agency review and action under CWA Section 303(c).[4]

[5] UDEQ relocated the gross alpha pollution indicator in Table 2.14.2 (as identified by the associated footnote) to the bottom of the table to align with the other pollution indicators. The EPA reviewed historic versions of *Standard of Quality for Waters of the State* back to 1967 to confirm that gross alpha aquatic life value was originally adopted as pollution indicator and was never intended to be water quality criterion to protect aquatic life. We determined the position of gross alpha in Table 2.14.2 was remnant of historic *Appendix A: Numerical Standard for Protection of Beneficial Uses of Water* in which criteria for all use designations were presented in one table. Historic *Appendix A* presents gross alpha as a water quality criterion for domestic water use designations (as it remains in the current Table 2.14.1: Numeric Criteria for Domestic, Recreation and Agricultural Uses) and a pollution indicator for aquatic wildlife use designations. R317-2 today presents the numeric water quality criteria and pollution indicators that apply to the different use designations in 6 unique tables.